Amendments to the Specification:

Please replace paragraph **[0092]** at page 23 with the following amended paragraph:

[0092] In accordance with certain aspects of the present invention, charge separation efficiency is at least partially addressed by coupling the outer surface or shell of the nanocrystal to the polymer matrix. The coupling comprises an electrically conductive coupling that provides a more direct route of conduction from the nanocrystal to the polymer matrix. Typically, such couplings may comprise any of a variety of covalent chemical, ionic, hydrophobic/hydrophilic interactions between the polymer and the nanocrystal, either directly or through one or more linking molecules. Examples of useful polymer/nanocrystal linkages include, e.g., modifying the polymer side chains, e.g., polymers like P3HT, PPV or their derivatives, to directly bind nanocrystal side chains, i.e., adding phosphonic acid groups, phosphine oxides, phosphine, amine, thiol or other chemistries that will couple to the passivated, partially passivated, and/or unpassivated atoms (e.g., to the cation or anion groups) present on a nanocrystal surface. As noted above, and as should be readily apparent, where the electron carrier and hole carrier are associated as the same structure, e.g., as a core-shell nanocrystal, charge separation efficiencies would be further expected to increase, which may be used in conjunction with or in certain preferred aspects, in lieu of a chemical linkage to a polymer matrix. Examples of useful approaches to surface chemistries for linkage to polymers or otherwise to enhance charge injection and/or extraction from nanocrystals are described in substantial detail in Provisional U.S. Patent Application No. 60/452,232 (Attorney Docket No. 40-002700US), filed March 4, 2003, and U.S. Patent Application No. <u>10/656,910</u> (Attorney Docket No. 40-002710US), filed~~ of even date herewith~~ <u>on September 4, 2003</u>, which are incorporated herein by reference in their entirety for all purposes.

Please replace paragraph **[0130]** at page 35 with the following amended paragraph:

[0130] Operation of an example embodiment in which the photoactive layer comprises two sublayers is schematically illustrated in Figure 12. In this example, the general device structure 1200 comprises an active layer 1202. As shown, the active layer includes one sublayer comprising one population of nanostructures 1206 and another sublayer comprising a population of nanostructures ~~1208~~ 1204. The nanostructures 1206 comprise a hole conducting inorganic material, while the nanostructures ~~1208~~1204 comprise an electron conducting inorganic material, where the two materials have a type II band offset. The active layer 1202 is disposed between first electrode 1208 and second electrode 1210 (which is illustrated disposed on a separate substrate 1216, although the electrode(s) and substrate can be a single integral unit). When light (arrow 1212) passes through the transparent electrode and substrate in this example, it impinges upon the nanocrystal, creating an exciton. The hole (Θ) is conducted by the nanocrystals 1206 to electrode 1210, while the electron (e^-) is conducted through the nanocrystals 1204 to electrode 1208. The resulting current flow in the direction of arrows 1215 is then exploited in load/device 1214.

Please replace paragraph **[0158]** at page 44 with the following amended paragraph:

Again, this issue is addressed by the flexible active layer materials that permit the use of contoured exposed surfaces. These contoured exposed surfaces will allow for an optimization of exposure for a wider variety of solar source positions. By way of example, a device may be provided with a convex or concave architecture, e.g., as shown in Figure 8C. Because of the convex/concave architecture of the device, and particularly the active layer and exposed surface, one can increase the number of photons that impinge on the active layer of the device, regardless of the solar position. As shown in Figure 8C, use of a convex photovoltaic device provides the ability to increase the number of photons striking a device when the light source is directed at the device at an angle, e.g., when the sun is in declination or otherwise at a nonoptimal angle, without increasing its footprint. In particular, as shown, when a light source ~~854~~ 856 or 858 shines onto the effective surface 852 of the convex device 850, a certain number of

photons impinge on the active layer ~~856~~ 854 within the device. Where the sun is directed at the overall device from an angle, e.g., as shown for the light sources 856~~854a~~ and 858~~854b~~, the number of photons captured by the convex device is equivalent to that of a conventional planar device having a much larger footprint 860. In particular, as is shown by the dashed lines, the photons blocked and thus captured by the device is equivalent to that which would have been captured by a much larger flat device under the same circumstances. In many cases, the allowable space for a photovoltaic device or system will be limited, and thus, the convex architecture would be highly desirable. As will be appreciated, due to the non-uniform exposure of the overall effective surface of a convex device, preferred such devices will typically segment the overall device into discrete electrical units, or devices, to prevent current generated in high exposure or light regions from shorting through low exposure or dark regions. Such segmenting may take the form of fabricating discrete pouches sealed from one another, where each pouch is a separately functioning photovoltaic device, e.g., as shown in Figure 6, but where multiple pouches are structurally coupled together, e.g., in a sheet of many pouches (not shown).